REMARKS/ARGUMENTS

This application is under final rejection. Applicant has presented arguments hereinbelow that Applicant believes should render the claims allowable. In the event, however, that the Examiner is not persuaded by Applicant's arguments, Applicant respectfully requests that the Examiner enter the amendment to clarify issues upon appeal.

This Amendment is in response to the Office Action dated March 2, 2004. Claims 1-18 are pending. Claims 1-18 are rejected. Claims 1, 8, 9, and 16-18 have been amended. No claims have been canceled. Accordingly, claims 1-18 remain pending in the present application.

Claims 1-18 are rejected under USC 103(a) as being unpatentable over the article entitled, "ARIES: A Transaction Recovery Method Supporting Fine-Granularity Locking and Partial Rollbacks Using Write-Ahead Logging" by Mohan et al. (hereinafter "Mohan") in view of US Patent No. 5,983,225 to Anfindsen. The Examiner states:

> Referring to claim 1, Mohan discloses a method for selectively releasing locks on data as claimed. See sections 1.2 – 1.3, 2 and 5 for the details of this disclosure. Mohan teaches a method for selectively releasing locks on data, comprising the steps of:
> (a) providing at least one savepoint [SaveLSN (See section 5.2)] in a transaction, wherein a first lock [write/update lock] and a second lock [read lock] are acquired after the at least one savepoint [See first full paragraph on page 120], wherein the first lock is assigned to the at least one savepoint;
> (b) rolling back the transaction [See Fig. 8] to the at least one savepoint; and
> (c) releasing the first lock [See first full paragraph on page 120] assigned to the at least one savepoint.
>
> Mohan does not explicitly teach the second lock being "assigned to the transaction" and being maintained after rolling back the transaction to the at least one savepoint as claimed. This however, is only because Mohan is silent on differentiation between locking/unlocking procedures during rollback being that the paper deals only with recovery after a system failure.
>
> Anfindsen teaches a system and method similar to that of Mohan, including repeatable read and transaction consistency isolation wherein all read locks acquired by a transaction are assigned to the transaction and maintained until commit or abort, even if the transaction rolls back to a savepoint prior to the point of acquiring the read lock. See column 9, lines 25-67 of Anfindsen's specification for this disclosure. Anfindsen discloses the purpose of this practice to ensure that read data will not change until the transaction terminates (i.e., a read that is repeated will return the original row, unchanged).
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Anfindsen's repeatable read and transaction consistency isolation procedures to the system and method of Mohan by assigning any read lock(s) ["second lock" in claim language] acquired after any given savepoint to the transaction and maintaining these locks until commit or abort. One would

> have been motivated to do so in order to expand Mohan's system to deal with partial rollbacks caused by the transaction itself instead of just for failure recovery, guaranteeing that read data would not change until the transaction terminated, as provided by Anfindsen. one would have been further motivated to combine these references because of Mohan's disclosure of the importance of repeatable read in transaction recovery (See pages 144-145) and Anfindsen's disclosure of the importance of partial rollback to a savepoint (See columns 2 and 14)...

Applicant respectfully disagrees as to the claims as amended. The present invention, as recited in amended independent claims 1, 8, 9, and 16-18, provide a method and system for selectively releasing locks on data, comprising: (a) providing at least one savepoint in a transaction, wherein a first lock and a second lock are acquired after the at least one savepoint, wherein the first lock is assigned to the at least one savepoint and the second lock is assigned to the transaction; (b) rolling back the transaction to the at least one savepoint; and (c) releasing any locks assigned to the at least one savepoint, wherein any locks assigned to the transaction is are maintained, wherein the first lock is released and the second lock is maintained.

According to the present invention, locks which are to persist until commit are assigned to the transaction. Locks which are to be released when rolled back to a savepoint are assigned to the savepoint. When a rollback to the savepoint occurs, locks assigned to the savepoint are released while locks assigned to the transaction are maintained. In this manner, selective release of locks is provided without incurring unduly burdensome overhead. (See Specification generally, and specifically the Abstract.)

In contrast, neither Mohan nor Anfindsen discloses assigning locks in this manner. Mohan discloses "locks obtained after the establishment of the savepoint which is the target of the rollback may be released after the partial or total rollback is completed." (p. 120, first full paragraph) Anfindsen discloses acquiring locks to the transaction and maintaining these locks until commit or abort. However, unlike the present invention, the combination of Mohan and Anfindsen does not disclose selectively assigning locks either to the savepoint or the transaction, and then using these assignments to determine which locks to release after a rollback. The

assignment of the locks in this manner to assist in lock release after rollback is significant in that overhead savings can be realized in the selective release of locks. This overhead savings cannot be realized by Mohan in view of Anfindsen.

Thus, Mohan in view of Anfindsen does not teach or suggest rolling back the transaction to the at least one savepoint and releasing any locks assigned to the at least one savepoint, wherein any locks assigned to the transaction are maintained, wherein the first lock is released and the second lock is maintained, in combination with the other elements as recited in amended independent claims 1, 8, 9, and 16-18 of the present invention.

Therefore, for the above identified reasons, the present invention as recited in independent claims 1, 8, 9, and 16-18 is neither taught nor suggested by Mohan in view of Anfindsen. Applicant further submits that claims 2-7 and 10-15 are also allowable because they depend on the above allowable base claims.

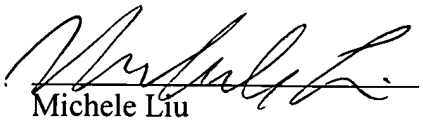
In view of the foregoing, Applicant submits that claims 1-18 are patentable over the cited references. Applicant, therefore, respectfully requests reconsideration and allowance of the claims as now presented.

The prior art made of record and not relied upon has been reviewed and does not appear to be any more relevant than the applied references.

Applicants' attorney believes this application in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicants' attorney at the telephone number indicated below.

Respectfully submitted,
SAWYER LAW GROUP LLP

April 29, 2004
Date



Michele Liu
Attorney for Applicant(s)
Reg. No. 44,875
(650) 493-4540